

Application No.: 10/511,986
Amendment under 37 CFR 1.111
Reply to Office Action dated February 23, 2007
May 21, 2007

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently amended): A mounting method comprising the steps of:

positioning objects being bonded to each other, which face each other with a gap, relative to each other;

moving a movable wall positioned around both objects until coming into contact with one object holding means to form a local chamber having a local enclosed space and enclosing said both objects in said local chamber;

reducing a pressure in said local chamber to set an inside of said local chamber at a predetermined vacuum condition;

[[and]]

moving said object holding means in a direction for reducing a volume of said local chamber and moving said movable wall following the movement of said object holding means and bonding said both objects to each other by pressing; and

wherein, when said object holding means and said movable wall following said object holding means are moved, a force acting to said object holding means by the pressure in said local chamber and a contact force of said movable wall to said object holding means are substantially balanced.

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Claim 2 (Currently amended): The mounting method according to claim 1, wherein surfaces of said objects being bonded ~~of~~ ~~said objects~~ are cleaned in said local chamber by an energy wave or energy particle beam after the pressure in said local chamber is reduced to set the inside of said local chamber at said predetermined vacuum condition, and thereafter, said object holding means and said movable wall following said object holding means are moved and said both objects are bonded to each other by pressing.

Claim 3 (Original): The mounting method according to claim 2, wherein said cleaning by said energy wave or energy particle beam is carried out under said predetermined vacuum condition.

Claim 4 (Original): The mounting method according to claim 2, wherein said cleaning by said energy wave or energy particle beam is carried out after reducing the pressure in said local chamber to set the inside of said local chamber at said predetermined vacuum condition, and after the cleaning and before the bonding, the inside atmosphere of said local chamber is replaced with an atmospheric inert or oxidizing gas.

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Claim 5 (Original): The mounting method according to claim 2, wherein said energy wave or energy particle beam is a plasma.

Claim 6 (Currently amended): The mounting method according to claim 1, wherein a sealing material is applied onto a surface of one object before or after the pressure in said local chamber is reduced to set the inside of said local chamber at said predetermined vacuum condition, and at the sealing material applied condition and under said predetermined vacuum condition, said object holding means and said movable wall following said object holding means are moved and bonding parts of said both objects are bonded to each other in said sealing material by pressing.

Claim 7 (Original): The mounting method according to claim 6, wherein said sealing material is a non-conductive paste or an anisotropic conductive paste.

Claim 8 (Currently amended): The mounting method according to claim 1, wherein the inside of said local chamber is set at

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an atmosphere condition of a specified gas after the pressure in said local chamber is reduced to set the inside of said local chamber at said predetermined vacuum condition, and under said specified gas atmosphere condition, said object holding means and said movable wall following said object holding means are moved and said both objects are bonded to each other by pressing.

Claim 9 (Original): The mounting method according to claim 8, wherein the inside of said local chamber is set at said specified gas atmosphere condition with an atmospheric pressure.

Claim 10 (Original): The mounting method according to claim 8, wherein an inert gas, a non-oxidizing gas, a reducing gas or a substitutional gas is used as said specified gas.

Claim 11 (Original): The mounting method according to claim 1, wherein, in said step of setting said predetermined vacuum condition, the inside of said local chamber is sealed against outside by a contact force of said movable wall to said object holding means.

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Claim 12 (Cancelled):

Claim 13 (Currently amended): The mounting method according to claim 1, wherein, when said object holding means and said movable wall following said object holding means are moved and [[one]] a first object on said object holding means is pressed to ~~the other~~ a second object, the pressing is performed utilizing the pressure in said local chamber by reducing a contact force of said movable wall to said object holding means.

Claim 14 (Currently amended): A mounting device for bonding both objects to each other by pressing after positioning said both objects relative to each other with a gap, said mounting device comprising;

a movable wall positioned around said both objects, capable of moving until coming into contact with one object holding means to form a local chamber having a local enclosed space capable of enclosing said both objects in said local chamber, and capable of moving in a direction for reducing a volume of said local chamber following the movement of said object holding means; [[and]]

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a vacuum suction means for reducing a pressure in said local chamber to set an inside of said local chamber at a predetermined vacuum condition; and

a seal member capable of being elastically deformed is provided at a tip of said movable wall.

Claim 15 (Original): The mounting device according to claim 14, wherein said mounting device has a cylinder means for moving said movable wall.

Claim 16 (Cancelled):

Claim 17 (Currently amended): The mounting device according to claim 14, wherein said mounting device has means for cleaning surfaces of said objects being bonded ~~of said~~ ~~objects~~ in said local chamber by an energy wave or energy particle beam.

Claim 18 (Original): The mounting device according to claim 17, wherein said mounting device has a gas supply means for replacing the inside of said local chamber with an atmosphere of an inert gas or a non-oxidizing gas at the time

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of and/or after cleaning by said energy wave or energy particle beam.

Claim 19 (Original): The mounting device according to claim 17, wherein said energy wave or energy particle beam is a plasma.

Claim 20 (Original): The mounting device according to claim 19, wherein each of said object holding means has an electrode for generating a plasma.

Claim 21 (Original): The mounting device according to claim 19, wherein said mounting device has means for applying a sealing material onto a surface of one object.

Claim 22 (Original): The mounting device according to claim 21, wherein said sealing material is a non-conductive paste or an anisotropic conductive paste.

Claim 23 (Original): The mounting device according to claim 14, wherein said mounting device has a specified gas supply means for setting the inside of said local chamber at an

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atmosphere condition of a specified gas after the pressure in said local chamber is reduced to set the inside of said local chamber at said predetermined vacuum condition.

Claim 24 (Original): The mounting device according to claim 23, wherein said specified gas is an inert gas, a non-oxidizing gas, a reducing gas or a substitutional gas.

Claim 25 (Original): The mounting device according to claim 14, wherein at least one object holding means has a heating means.

Claim 26 (Original): The mounting device according to claim 14, wherein at least one object holding means has an electrostatic chucking means for holding said object electrostatically.